

CLAIM AMENDMENTS

This listing of claims will replace all prior versions and listings of claims in the application.

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2 1. (Currently Amended) A display device that reduces energy consumption during row transitions, the display device comprising:

3 a plurality of pixels arranged in an array having n rows and m columns, each
4 of said pixels comprising:

5 a switching element having a gate;

6 a plurality of control lines, each of the control lines connected to the
7 gates of a corresponding row of said pixels;

8 a plurality of data lines, each of the data lines connected to the
9 switching elements of a corresponding column of said pixels;

10 a row driver circuit that scans the n rows by a-draining charge from
11 one of said control lines down to a given reference voltage, storing the drained
12 charge as a stored charge, and charging another of said control lines to a
13 given scan voltage using the stored charge[[,]]; and

14 a column driver circuit that controls the m columns by applying a
15 column voltage to said data lines, said column voltage corresponding to ~~the~~
16 image data of the pixels of a selected row to be displayed,

wherein the row driver circuit is arranged to:

drain said control lines by an intermediate draining of ~~a~~an initial
charge from a selected one of the control lines down to an intermediate
voltage level and storing the drained charge,

followed by a final draining down of a remaining charge from the
selected one of the control lines, said final draining including connecting of
the selected ~~one~~control line to a common reference voltage, said final
draining ending at a time T relative to said intermediate draining, and

wherein said row driver circuit is arranged to:

perform said charging by an intermediate charging, beginning at a
time not ~~substantially~~ earlier than T, of said another selected one of the
control lines to said intermediate voltage level, said intermediate charging
using said stored charge,

followed by a final charging of said another selected one of the control
lines to said scan voltage.

2. (Currently Amended) The display device of claim 1, wherein the row driver is
arranged to perform the intermediate draining as a staged intermediate draining,
comprising:

4 a first intermediate draining of a first charge from the selected one of the
5 control lines down to a first intermediate voltage level and a storing of the drained
6 charge as a first stored charge,

7 followed by second intermediate draining of a second charge from the selected
8 one of the control lines down to a second intermediate voltage level, and a storing of
9 the drained charge as a second stored charge, and wherein the row driver is
10 arranged to perform the intermediate charging as a successive intermediate
11 charging, comprising a first intermediate charging of the selected another of the
12 control lines using the first stored charge, followed by a second intermediate
13 charging of the selected another of the control lines using the second stored charge.

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1 3. (Canceled).

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1 4. (Previously Presented) The display device of claim 1, wherein the column
2 voltage ranges up to a maximum column voltage and said maximum column voltage
3 is used as the intermediate voltage level.

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1 5. (Previously Presented) The display device of claim 1, wherein the
2 intermediate voltage level is half of said scan voltage.

6. (Canceled).

7. (Currently Amended) A method of reducing energy consumption during row transitions in a display device with pixels arranged in rows n and columns m, each pixel comprising a capacitor coupled to a switching element, said method comprising the following steps:

draining one of said control lines down to a given reference voltage, and storing the drained charge as a stored charge;

charging another of said control lines to a given scan voltage using the stored charge [L];

wherein the draining comprises:

an intermediate draining of ~~a~~ an initial charge from a selected one of the control lines down to an intermediate voltage level [L];

storing the drained charge [L]; and

a final draining down to a common reference voltage of a remaining charge from the selected one of the control lines, said final draining ending at a time T relative to said intermediate draining; and

wherein the charging comprises:

17 an intermediate charging to said intermediate voltage level of another
18 selected one of the control lines, said charging using said stored charge and
19 beginning at a time not substantially earlier than $T_{[L]}$; and
20 a final charging to said scan voltage of said another selected one of the
21 control lines.

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